Figure 1

ATGAAGATTACAAAACCACATGTGGCCATGTTCGCTAGCCCCGGAATGGGCCACA
TCATCCCGGTGATCGAGCTCGGAAAACGCTTAGCTGGTTCCCACGGCTTCGATGT
CACCATTTTCGTCCTTGAAACCGACGCAGCCTCAGCTCAATCTCAATTCCTTAACT
CACCAGGCTGCGACGCGGCCCTTGTTGATATCGTTGGCCTCCCAACGCCCGATAT
CTCCGGTTTAGTCGACCCATCAGCCTTTTTTGGGATCAAGCTCTTGGTCATGATGC
GTGAGACCATTCCTACCATCCGGTCAAAGATAGAGGAGATGCAACACAAACCAA
CGGCTCTGATCGTAGACTTGTTTGGTTTGGACGCGATACCGCTCGGTGGTGAGTTC
AACATGTTGACTTATATCTTCATCGCTTCAAACGCACGTTTTCTCGCGGTGGCTTT
GTTTTTCCCAACGTTGGACAAAGACATGGAAGAAGAGCACATAATCAAGAAGCA
ACCTATGGTTATGCCTGGATGTGAACCGGTTCGGTTTGAAGATACACTTGAAACA
TTCCTTGACCCAAACAGCCAACTCTACCGGGAATTTGTTCCTTTCGGTTCGGTTTT
CCCAACGTGTGATGGTATTATTGTGAATACATGGGATGATATGGAGCCCAAAACT
TTGAAATCTCTTCAAGACCCAAAGCTCTTGGGTCGAATTGCTGGTGTACCGGTTTA
TCCAATTGGTCCTTTGTCTAGACCGGTTGATCCATCTAAAACTAATCATCCGGTTT
TGGATTGGTTAAACAAACAGCCGGACGAGTCGGTACTTTACATTTCATTTGGAAG
CGGTGGCTCTCTCTCGGCTAAACAACTAACCGAATTGGCTTGGGGACTTGAGATG
AGTCAGCAACGGTTCGTTTGGGTGGTTCGACCCCCGGTGGACGGTTCAGCTTGCA
GTGCATATTTATCCGCTAACAGTGGTAAAATACGAGACGGTACACCTGATTATCT
CCCGGAAGGTTTTGTTAGCCGGACTCATGAGAGAGGCTTTATGGTCTCTTCTTGG
GCTCCCCAAGCGGAGATCTTGGCCCACCAAGCCGTAGGTGGGTTTCTAACTCACT
GCGGTTGGAATTCGATTCTCGAGAGCGTCGTTGGTGGCGTTCCGATGATCGCGTG
GCCACTTTTTGCGGAGCAGATGATGAACGCGACACTCCTCAACGAAGAGCTTGGC
GTTGCCGTCCGCTCTAAGAAACTACCGTCGGAGGGAGTGATTACGAGGGCGGAG
ATCGAGGCGTTGGTGAGAAAGATCATGGTGGAGGAGGAAGGTGCTGAGATGAGA
AAGAAGATAAAGAAGCTGAAAGAGACCGCTGCCGAATCGCTGAGTTGCGACGGT
GGAGTGGCGCATGAATCGTTGTCAAGAATCGCCGACGAGAGCGAGCATCTTTTGG
AGCGTGTCAGGTGCATGGCACGTGGTGCCTAG

Figure 2

MKITKPHVAMFASPGMGHIIPVIELGKRLAGSHGFDVTIFVLETDAASAQSQF
LNSPGCDAALVDIVGLPTPDISGLVDPSAFFGIKLLVMMRETIPTIRSKIEEMQH
KPTALIVDLFGLDAIPLGGEFNMLTYIFIASNARFLAVALFFPTLDKDMEEEHII
KKQPMVMPGCEPVRFEDTLETFLDPNSQLYREFVPFGSVFPTCDGIIVNTWDD
MEPKTLKSLQDPKLLGRIAGVPVYPIGPLSRPVDPSKTNHPVLDWLNKQPDES
VLYISFGSGGSLSAKQLTELAWGLEMSQQRFVWVVRPPVDGSACSAYLSANS
GKIRDGTPDYLPEGFVSRTHERGFMVSSWAPQAEILAHQAVGGFLTHCGWNS
ILESVVGGVPMIAWPLFAEQMMNATLLNEELGVAVRSKKLPSEGVITRAEIEA
LVRKIMVEEEGAEMRKKIKKLKETAAESLSCDGGVAHESLSRIADESEHLLER
VRCMARGA

Figure 3

ATGCATATCA CAAAACCACA CGCCGCCATG TTTTCCAGTC CCGGAATGGG
CCATGTCATC CCGGTGATCG AGCTTGGAAA GCGTCTCTCC GCTAACAACG
GCTTCCACGT CACCGTCTTC GTCCTCGAAA CCGACGCAGC CTCCGCTCAA
TCCAAGTTCC TAAACTCAAC CGGCGTCGAC ATCGTCAAAC TTCCATCGCC
GGACATTTAT GGTTTAGTGG ACCCCGACGA CCATGTAGTG ACCAAGATCG
GAGTCATTAT GCGTGCAGCA GTTCCAGCCC TCCGATCCAA GATCGCTGCC
ATGCATCAAA AGCCAACGGC TCTGATCGTT GACTTGTTTG GCACAGATGC
GTTATGTCTC GCAAAGGAAT TTAACATGTT GAGTTATGTG TTTATCCCTA
CCAACGCACG TTTTCTCGGA GTTTCGATTT ATTATCCAAA TTTGGACAAA
GATATCAAGG AAGAGCACAC AGTGCAAAGA AACCCACTCG CTATACCGGG
GTGTGAACCG GTTAGGTTCG AAGATACTCT GGATGCATAT CTGGTTCCCG
ACGAACCGGT GTACCGGGAT TTTGTTCGTC ATGGTCTGGC TTACCCAAAA
GCCGATGGAA TTTTGGTAAA TACATGGGAA GAGATGGAGC CCAAATCATT
GAAGTCCCTT CTAAACCCAA AGCTCTTGGG CCGGGTTGCT CGTGTACCGG
TCTATCCAAT CGGTCCCTTA TGCAGACCGA TACAATCATC CGAAACCGAT
CACCCGGTTT TGGATTGGTT AAACGAACAA CCGAACGAGT CGGTTCTCTA
TATCTCCTTC GGGAGTGGTG GTTGTCTATC GGCGAAACAG TTAACTGAAT
TGGCGTGGGG ACTCGAGCAG AGCCAGCAAC GGTTCGTATG GGTGGTTCGA
CCACCGGTCG ACGGTTCGTG TTGTAGCGAG TATGTCTCGG CTAACGGTGG
TGGAACCGAA GACAACACGC CAGAGTATCT ACCGGAAGGG TTCGTGAGTC
GTACTAGTGA TAGAGGTTTC GTGGTCCCCT CATGGGCCCC ACAAGCTGAA
ATCCTGTCCC ATCGGGCCGT TGGTGGGTTT TTGACCCATT GCGGTTGGAG
CTCGACGTTG GAAAGCGTCG TTGGCGGCGT TCCGATGATC GCATGGCCAC
TTTTTGCCGA GCAGAATATG AATGCGGCGT TGCTCAGCGA CGAACTGGGA
ATCGCAGTCA GATTGGATGA TCCAAAGGAG GATATTTCTA GGTGGAAGAT
TGAGGCGTTG GTGAGGAAGG TTATGACTGA GAAGGAAGGT GAAGCGATGA
GAAGGAAAGT GAAGAAGTTG AGAGACTCGG CGGAGATGTC ACTGAGCATT
GACGGTGGTG GTTTGGCGCA CGAGTCGCTT TGCAGAGTCA CCAAGGAGTG
TCAACGGTTT TTGGAACGTG TCGTGGACTT GTCACGTGGT GCTTAG

Figure 4

MHITKPHAAM FSSPGMGHVI PVIELGKRLS ANNGFHVTVF VLETDAASAQ

SKFLNSTGVD IVKLPSPDIY GLVDPDDHVV TKIGVIMRAA VPALRSKIAA

MHQKPTALIV DLFGTDALCL AKEFNMLSYV FIPTNARFLG VSIYYPNLDK

DIKEEHTVQR NPLAIPGCEP VRFEDTLDAY LVPDEPVYRD FVRHGLAYPK

ADGILVNTWE EMEPKSLKSL LNPKLLGRVA RVPVYPIGPL CRPIQSSETD

HPVLDWLNEQ PNESVLYISF GSGGCLSAKQ LTELAWGLEQ SQQRFVWVVR

PPVDGSCCSE YVSANGGGTE DNTPEYLPEG FVSRTSDRGF VVPSWAPQAE

ILSHRAVGGF LTHCGWSSTL ESVVGGVPMI AWPLFAEQNM NAALLSDELG

IAVRLDDPKE DISRWKIEAL VRKVMTEKEG EAMRRKVKKL RDSAEMSLSI

DGGGLAHESL CRVTKECQRF LERVVDLSRG A

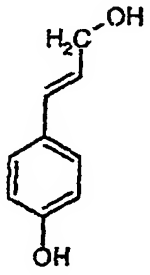
Figure 5

ATGCATATCA CAAAACCACA CGCCGCCATG TTTTCCAGTC CCGGAATGGG
CCATGTCCTC CCGGTGATCG AGCTAGCTAA GCGTCTCTCC GCTAACCACG
GCTTCCACGT CACCGTCTTC GTCCTTGAAA CTGACGCAGC CTCCGTTCAG
TCCAAGCTCC TTAACTCAAC CGGTGTTGAC ATCGTCAACC TTCCATCGCC
CGACATTTCT GGCTTGGTAG ACCCCAACGC CCATGTGGTG ACCAAGATCG
GAGTCATTAT GCGTGAAGCT GTTCCAACCC TCCGATCCAA GATCGTTGCC
ATGCATCAAA ACCCAACGGC TCTGATCATT GACTTGTTTG GCACAGATGC
GTTATGTCTT GCAGCGGAGT TAAACATGTT GACTTATGTC TTTATCGCTT
CCAACGCGCG TTATCTCGGA GTTTCGATAT ATTATCCAAC TTTGGACGAA
GTTATCAAAG AAGAGCACAC AGTGCAACGA AAACCGCTCA CTATACCGGG
GTGTGAACCG GTTAGATTTG AAGATATTAT GGATGCATAT CTGGTTCCGG
ACGAACCGGT GTACCACGAT TTGGTTCGTC ACTGTCTGGC CTACCCAAAA
GCGGATGGAA TCTTGGTGAA TACATGGGAA GAGATGGAGC CCAAATCATT
AAAGTCCCTT CAAGACCCGA AACTTTTGGG CCGGGTCGCT CGTGTACCGG
TTTATCCGGT TGGTCCGTTA TGCAGACCGA TACAATCATC CACGACCGAT
CACCCGGTTT TTGATTGGTT AAACAAACAA CCAAACGAGT CGGTTCTCTA
CATTTCCTTC GGGAGTGGTG GTTCTCTAAC GGCTCAACAG TTAACCGAAT
TGGCGTGGGG GCTCGAGGAG AGCCAGCAAC GGTTTATATG GGTGGTTCGA
CCGCCCGTTG ACGGCTCGTC TTGCAGTGAT TATTTCTCGG CTAAAGGCGG
TGTAACCAAA GACAACACGC CAGAGTATCT ACCAGAAGGG TTCGTGACTC
GTACTTGCGA TAGAGGTTTC ATGATCCCAT CATGGGCACC GCAAGCTGAA
ATCCTAGCCC ATCAGGCCGT TGGTGGGTTT TTAACACATT GTGGTTGGAG
CTCGACGTTG GAAAGCGTCC TTTGCGGCGT TCCAATGATA GCGTGGCCGC
TTTTCGCCGA GCAGAATATG AACGCGGCGT TGCTTAGCGA TGAACTGGGA
ATCTCTGTTA GAGTGGATGA TCCAAAGGAG GCGATTTCTA GGTCGAAGAT
TGAGGCGATG GTGAGGAAGG TTATGGCTGA GGACGAAGGT GAAGAGATGA
GAAGGAAAGT GAAGAAGTTG AGAGACACGG CGGAGATGTC ACTTAGTATT
CACGGTGGTG GTTCGGCGCA TGAGTCGCTT TGCAGAGTCA CGAAGGAGTG
TCAACGGTTT TTGGAATGTG TCGGGGACTT GGGACGTGGT GCTTAG

Figure 6

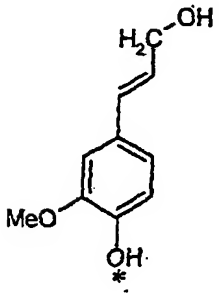
MHITKPHAAM FSSPGMGHVL PVIELAKRLS ANHGFHVTVF VLETDAASVQ
SKLLNSTGVD IVNLPSPDIS GLVDPNAHVV TKIGVIMREA VPTLRSKIVA
MHQNPTALII DLFGTDALCL AAELNMLTYV FIASNARYLG VSIYYPTLDE
VIKEEHTVQR KPLTIPGCEP VRFEDIMDAY LVPDEPVYHD LVRHCLAYPK
ADGILVNTWE EMEPKSLKSL QDPKLLGRVA RVPVYPVGPL CRPIQSSTTD
HPVFDWLNKQ PNESVLYISF GSGGSLTAQQ LTELAWGLEE SQQRFIWVVR
PPVDGSSCSD YFSAKGGVTK DNTPEYLPEG FVTRTCDRGF MIPSWAPQAE
ILAHQAVGGF LTHCGWSSTL ESVLCGVPMI AWPLFAEQNM NAALLSDELG
ISVRVDDPKE AISRSKIEAM VRKVMAEDEG EEMRRKVKKL RDTAEMSLSI
HGGGSAHESL CRVTKECQRF LECVGDLGRG A

p-coumaryl alcohol

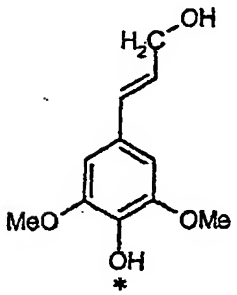


(no activity)

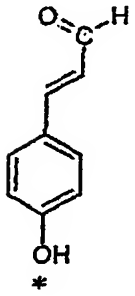
Coniferyl alcohol



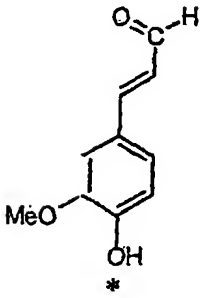
Sinapyl alcohol



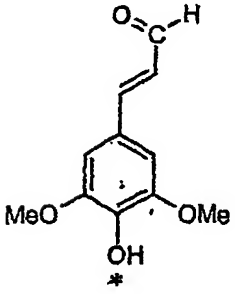
p-coumaryl aldehyde



Coniferyl aldehyde



Sinapyl aldehyde



* : position for glucosylation

Figure 7

Figure 8a

ATGAAGATTACAAAACCACATGTGGCCATGTTCGCTAGCCCCGGAATGGGCCACATC
ATCCCGGTGATCGAGCTCGGAAAACGCTTAGCTGGTTCCCACGGCTTCGATGTCACC
ATTTTCGTCCTTGAAACCGACGCAGCCTCAGCTCAATCTCAATTCCTTAACTCACCA
GGCTGCGACGCGGCCCTTGTTGATATCGTTGGCCTCCCAACGCCCGATATCTCCGGT
TTAGTCGACCCATCAGCCTT

Figure 8b

TGTGGTGACCAAGATCGGAGTCATTATGCGTGAAGCTGTTCCAACCCTCCGATCCAA
GATCGTTGCCATGCATCAAAACCCAACGGCTCTGATCATTGACTTGTTTGGCACAGA
TGCGTTATGTCTTGCAGCGGAGTTAAACATGTTGACTTATGTCTTTATCGCTTCCAA
CGCGCGTTATCTCGGAGTTTCGATATATTATCCAACTTTGGACGAAGTTATCAAAGA
AGAGCA

Figure 8c

CACAGTGCAAAGAAACCCACTCGCTATACCGGGGTGTGAACCGGTTAGGTTCGAAGA
TACTCTGGATGCATATCTGGTTCCCGACGAACCGGTGTACCGGGATTTTGTTCGTCA
TGGTCTGGCTTACCCAAAAGCCGATGGAATTTTGGTAAATACATGGGAAGAGATGGA
GCCCAAATCATTGAAGTCCCTTCTAAACCCAAAGCTCTTGGGCCGGGTTGCTCGTGT
ACCGGTCTATCCAATCGGT